PLANT IMMIGRANTS.

No. 191. MARCH, 1922.

GENERA REPRESENTED IN THIS NUMBER.

Plates:

Foreign Seed and Plant Introduction.

EXPLANATORY NOTE

This circular is made up principally of notes received from agricultural explorers, foreign collaborators, and correspondents, concerning the more important plants which have been received recently by the Office of Foreign Seed and Plant Introduction. It also contains reports on the behavior of plants which have been introduced in previous years.

Descriptions appearing here are revised and later published in the Inventory of Seeds and Plants Imported,--the permanent record of plant introductions made by this Office.

Plant Immigrants should be considered merely an ANNOUNCEMENT OF THE ARRIVAL OF PLANT MATERIAL. As a rule all material is propagated before being distributed; this may require several years.

The Annual Catalogue of New Plant Introductions describes briefly the plants available for distribution. Applications for seeds or plants listed in Plant Immigrants may be sent at any time, however, and will be filed in the order of their receipt. When material is ready for distribution, these requests will be given first attention; if their number is sufficient to exhaust the available supply of a given species, it will not be included in the Annual Catalogue.

Plant breeders and experimenters who desire plants not available in this country are invited to correspond with this Office which will endeavor to secure the required material through its agricultural explorers, foreign collaborators, or correspondents.

DAVID FAIRCHILD
Agricultural Explorer in Charge,
Office of Foreign Seed and Plant Introduction.

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Acaeia verek (Mimosaceae), 54799. From Khartoum North, Anglo-Egyptian Sudan. Seeds presented by Maj. R. G. Archibald, Wellcome Tropical Research Laboratories, through Mr. Henry S. Wellcome. The "Hashab" of East-Central Africa produces the "Kordofan" or "Turkey" gum, which is a pure form of gum arabic; the tree grows in the mountainous districts of Kordofan on the Upper Nile. The gum occurs in pure white, rounded lumps, often as large as a walnut and very much fissured. This is the gum most frequently used for medicinal purposes and is, in fact, the only kind which should be so used. (Adapted from Watt, Dictionary of the Economic Products of India, vol. 1, p. 56.)

Annona sp. (Annonaceae), 54682. From Caracas, Venezuela. Seeds presented by Mr. H. Pittier. "Seeds of the so-called 'chirimoriñon.' The fruit is small for its kind, about 12 centimeters (5 in.) long, ovoid-oblique, and almost pointed at the apex. At the base, the scales are very numerous, imbricate, and mostly small; towards the apex they are much larger, and scattered in the shape of rounded protuberances. It is by far the most delicious of the sweetsops, the fiberless flesh having just the consistence of thickish cream and a delightful flavor suggestive of strawberry ice cream without any of the 'gout de pommade' of either *Annona reticulata* or *A. cherimola*. The seeds seem to be very few in each fruit." (Pittier.)

"Probably tropical in its requirements, and in the United States suited for cultivation only in southern Florida." (Wilson Popenoe.)

Cymbopogon rufus (Poaceae), 54679. From Lavras, Minas Geraes, Brazil. Seeds presented by Mr. B. H. Hunnicutt. "'Jaraguá grass.' A perennial grass native to Brazil and cultivated there and at various other places in the American Tropics. This leafy bunch-grass, the tussocks of which become a foot or so in diameter and the numerous leafy culms 6 to 10 feet high, is primarily a hay-grass and yields the best quality if cut when 3 feet high, so that from 2 to 6 cuttings may be made in a year. The hay is considered excellent for fattening and particularly desirable as horse-feed. Previous introductions have been tested in the South and in California with promising results, though the grass is killed at temperatures of about 25° F. In Brazil the grass is also grazed, but it must not be overgrazed as under such treatment it is killed. At the present time it is being extensively tested in Florida and Texas." (C. V. Piper.)

Diospyros kaki (Diospyraceae),54681. **Kaki**. From Canton,Kwangtung,China. Seeds presented by Mr. C. O. Levine,acting director of Agriculture, Canton Christian College, through Mr. F. A. McClure. "'Kai Sam T'sz' (Chicken-heart persimmon). Practically all of the kakis, or Japanese persimmons, hitherto grown in the United States have come from Japan and the central and northern parts of China. The southernmost forms of this species have never received much attention in this country though they are of importance as being likely to extend the area in which this fruit can successfully be grown. The Japanese varieties do not flourish in the climate of southern Florida, nor are they fully successful in Cuba and other tropical regions.

"In the vicinity of Canton, China,many kakis are grown, and it seems likely that some of these may be varieties which are better adapted to withstand tropical conditions than are those from the more northern parts of that country or from Japan. Canton,it should be remembered, lies almost exactly upon the northern tropic and is warm enough to permit the cultivation of the lychee,a fruit tree distinctly tropical in its requirements." (Wilson Popenoe.)

Dolichos lablab (Fabaceae), 54791. **Bonavist bean**. From Luxey,Landes,France. Seeds presented by Mr. L. Rouest, agronomist,Experimental Farm. "A Dolichos with violet flowers and black seeds,which is interesting for its resistance to drought;it produces excellent ensilage. This plant, of Egyptian origin, is of the second generation cultivated in France." (Rouest.)

Eugenia dombeyi (Myrtaceae), 54777. **Grumichama**. From Port Louis, Mauritius. Seeds presented by Mr. G. Regnard. "Both as a handsome ornamental tree,and for its pleasantly flavored, cherrylike fruits, the **grumichama** deserves to be planted in gardens and dooryards throughout the Tropics. It has not yet become well known outside its native country, Brazil, though it is cultivated in numerous Hawaiian gardens,and even in as remote a part of the world as Mauritius, as attested by these seeds which Mr. Regnard has sent us.

"Plants which were brought in by Messrs. Dorsett, Shamel, and myself from Brazil in 1914 have behaved in a most interesting manner at Miami, Fla. Not only have they withstood several rather severe winter frosts, but they have commenced to flower while still quite

small, – only 5 feet high, in fact, – and I shall be very much surprised if the plant eventually does not become as popular in southern Florida as its relative, the pitanga, is today. It has large, thick leaves, dark green and somewhat glossy. The flowers are white, an inch broad, and suggest those of the guava in general appearance. The dark-red fruits, the size and shape of a northern cherry, contain a single large, round seed, and are soft and delicate in texture, with a sweet, pleasant flavor which is quite agreeable at first trial. One of the interesting features of the plant is the remarkably short time which elapses between the appearance of the flowers and the ripening of the fruits." (Wilson Popenoe.)

Flacourtia euphlebia (Flacourtiaceae), 54691. From Manila, Philippine Islands. Seeds presented by Mr. P.J. Wester, agricultural adviser, Bureau of Agriculture, through Mr. Adn. Hernandez, secretary of Agriculture and Natural Resources. "'Lanagon.' A small tree, native to these Islands, bearing in profusion fruits very similar in appearance and flavor to those of *Flacourtia cataphracta*. They can probably also be used in the same way as those of the latter, - i.e., for jelly making." (Wester.)

Gossypium barbadense (Malvaceae), 54688. **Cotton.** From Cairo, Egypt. Seeds presented by Mr. James A. Prescott, Sultanic Agricultural Society. "'Pilion.' One of the earliest and most productive of the Egyptian types, with fiber running from 33 to 35 millimeters (1.2 to 1.3 in.) in length. There is a possibility that it will succeed in parts of Texas where the longer staple and later Egyptian cottons are not productive." (George Freeman.)

Juglans regia (Juglandaceae), 54789. **Walnut.** From Eskdale, Knutsford, Cheshire, England. Seeds presented by Mr. Howard Spence. "No. 5. Walnuts from the lower Himalayas, Northwest Provinces, India, which appear to be similar to those which gave very vigorous, unusually well-rooted plants. If they are the original type they will be of especial vigor, much more easily transplanted without injury than is the ordinary type and therefore of value as a stock.

"In this country the growth of these walnuts is much more rapid than either the ordinary *Juglans regia* or *J. nigra*; they appear to suffer much less from leaf

attack of various kinds, withstand frost much better than the ordinary *J. regia* or 'Royal' or 'Paradox,' and have a dense mass of fibrous rootlets with marked absence of excessive tap root. The thick shell safeguards their viability. I have kept some a year unstratified, simply in a drawer, and obtained germination." (Spence.)

Lathyrus sativus (Fabaceae), 54792. **Bitter vetch.** From Luxey, Landes, France. Seeds presented by Mr. L. Rouest, agronomist, Experimental Farm. "'Tangiers' vetch, a legume resistant to drought, with a growing period of about 80 days. The forage is much valued for sheep, and the seeds are eaten by the Arabs of Tangiers and northern Africa, and by the Sicilians." (Rouest.)

Melinis minutiflora (Poaceae), 54680. **Molasses grass.** From Lavras, Minas Geraes, Brazil. Seeds presented by Mr. B. H. Hunnicutt. "Mr. John Morley, of Lake Alfred, Fla., informed me that the molasses grass was so successful on his place that he is going to get a large quantity of seed for the planting of a very considerable area of it. He said the trouble encountered by other people who had tried to use this grass was, apparently, that they did not keep it closely enough grazed or cut. When permitted to grow unmolested it is likely to get rank." (David Fairchild.)

"I am immensely pleased to learn of the success that Mr. Morley had in pasturing this plant. While it grew extremely well at various places in Florida, every one else has reported that the cattle would not eat it. Apparently they must be educated to it. At Mr. Burguieres' place, West Palm Beach, Fla., the grass behaves as a weed, being abundant everywhere along the fence rows." (C. V. Piper.)

Ribes vulgare (Grossulariaceae), 54770 to 54775. **Garden currant.** From Barnham, England. Plants purchased from The Barnham Nurseries, Ltd. Quoted notes from Catalogue of Barnham Nurseries, unless otherwise stated.

54770. "'Comet.' A new red variety, of large size, robust habit, and an immense cropper; not so acid as some of the older sorts."

54771. "'New Red Dutch.' Said to be a most reliable sort, spreading habit, very fine bearing; late."

54772. "'Perfection' ('Laxton') (New). Reported as a remarkably fine red variety of exceptionally vigorous growth; a very heavy cropper, with long bunches of large berries."

54773. "'Raby Castle'('May's Victoria,' or 'Cherry'). A strong grower, with large crimson berries; it is a good bearer, and the berries hang late on the bushes." (Catalogue of King's Acre Nurseries.)

54774. "'Red Dutch.' One of the best varieties for general purposes,bearing large,deep-red berries." (Catalogue of King's Acre Nurseries.)

54775. "'Red Grape.' Reported a very fine berry and heavy cropper."

Ribes vulgare (Grossulariaceae), 54786 and 54787. **Garden currant.** From Hereford, England. Plants purchased from King's Acre Nurseries. Introduced for experimental work by the Department of Agriculture specialists.

54786. "'Raby Castle.'"

54787. "'Little Croft Beauty.' This new red currant is remarkable for the size of the individual berries, and is an unusual bearer." (Catalogue of King's Acre Nurseries.)

Ribes vulgare (Grossulariaceae), 54801 to 54804. **Garden currant.** From Woking, Surrey,England. Plants purchased from George Jackman & Son. Introduced for experimental work by specialists in the Department of Agriculture.

54801. "'Raby Castle.'"

54802. "'Victoria.' A very vigorous heavy cropper. The black berries are large, and hang well." (Catalogue of Barnham Nurseries.)

54803. "'White Dutch.' One of the best croppers, with immense berries." (Catalogue of Barnham Nurseries.)

54804. "'White Grape.' Berries of good quality, borne in long bunches." (Fruit Catalogue of Charles Turner, Bucks., England.)

Sorbus torminalis (Malaceae), 54797. From Elstree, Herts,England. Plants presented by Hon. Vicary Gibbs. This handsome European tree, 30 to 40 (rarely 70 or more) feet in height, apparently is seldom found in the wild state and is very rare in cultivation. It is said to be very drought resistant, and this introduction was made for the purpose of testing its use as an apple and pear stock for dry regions.

Notes on Behavior of Previous Introductions.

Amygdalus persica (Amygdalaceae), 38178 and 40721, from China. **Peach.** "Both of these peaches have done excellently. The trees are growing well in spite of the drought last summer, and have branched out very nicely." (Robert F. League, Simpsonville, S. C., December 23, 1921.)

Amygdalus persica nectarina (Amygdalaceae), 34685. **Quetta nectarine:** From Quetta, India. (Budded on *Amygdalus davidiana* stock.) "This was received in 1920; it grows well, and this year has borne several fruits, but I am inclined to think that it may develop rather early for certain success here." (William C. Shepard, Guinea Hills, Va., April 10, 1922.)

Chayota edulis (Cucurbitaceae). **Chayote.** "Six chayote fruits arrived in excellent condition, presumably from your Florida Introduction Garden. One of these was planted in the slat house here at the Station, two outside in our experimental garden and three at the Tantalus Substation. The plant grown in the slat house made a good growth but for some reason died before it came into fruit. Those planted in the garden here at the Central Station did not succeed on account of the hot, dry condition that existed several times during last summer. The specimens which were planted at the Tantalus Substation in the woods made a good growth and bore a number of fruits. These were more or less stung by the Mediterranean fruit fly but in many cases this injury did not destroy the germinating power of the seed and we still have a supply of plants from these seeds.

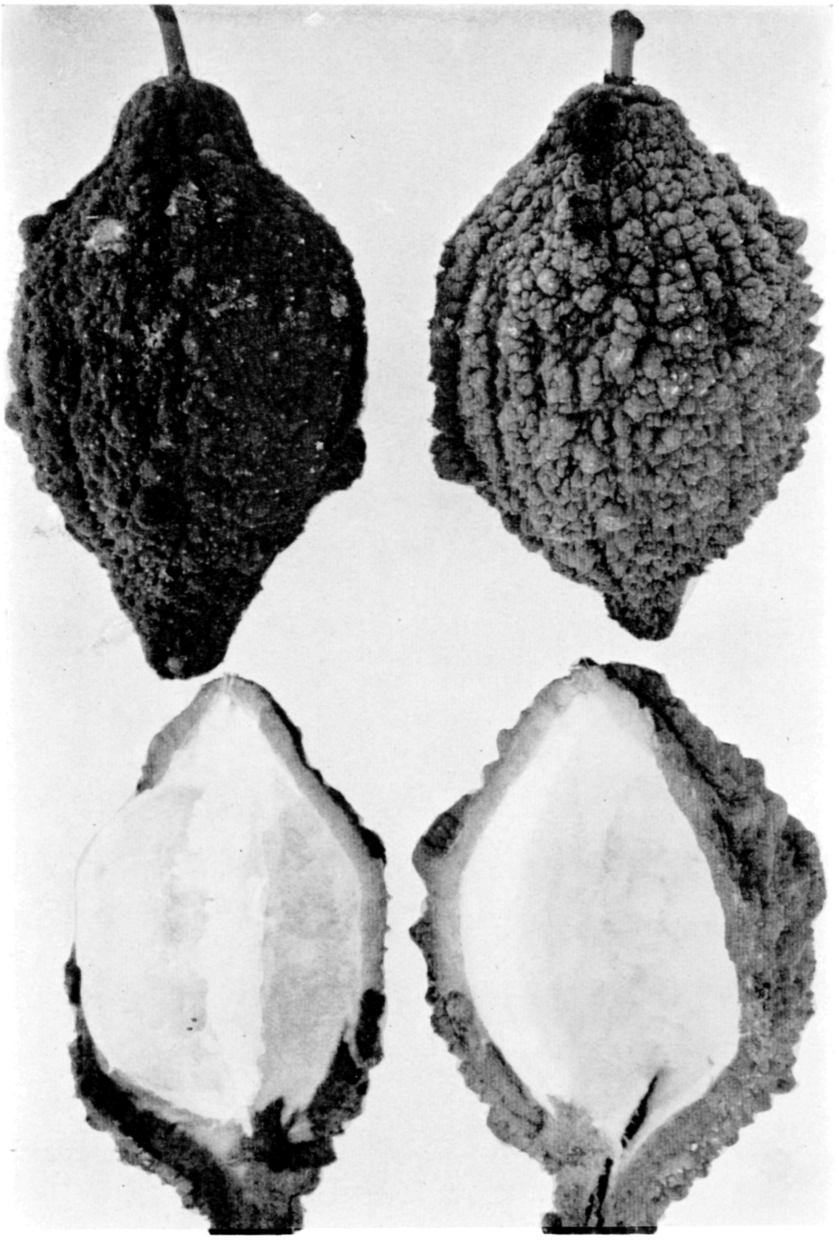
"I exhibited the best specimens we had at the Maui County Fair. There were on exhibition a number of chayote fruits from different growers in the Kula District, a locality between 4,000 and 6,000 feet elevation. They grow the chayote there in abundance without any injury from the fruit fly. Their specimens had a whiter look and were more pear shaped than the specimens which we grew at the Tantalus Substation. I also secured a number of seeds from their specimens which I have planted at the Tantalus Substation. I believe the chayote can be grown extensively in parts of the islands at the higher elevations and be made good use of as it already is in the one locality known as Kula on Maui." (Willis T. Pope, Hawaii Agricultural Experiment Station, Honolulu, Hawaii, April 1, 1922.)

THE LUCMA, A LITTLE-KNOWN ANDEAN FRUIT.

(*Lucuma obovata* H. B. K. See S. P. I. No. 54653.)

In the highlands of Ecuador and Peru and in central Chile the lucma is a popular fruit, but it is almost unknown in other countries. Its bright-yellow flesh has the consistency of soft cheese and resembles in flavor the sapote (*Achradelpha mammosa*) and the ti-es (*Lucuma nervosa*), which latter is cultivated in southern Florida. In the Urubamba Valley of Peru the lucma grows at elevations of 9,000 to 10,000 feet; from this it may be inferred that the species is somewhat hardier than the sapote and the ti-es. It may prove suitable for cultivation in favored portions of California, as well as in southern Florida. (Photographed by Wilson Popenoe, Tungurahua, Ecuador, March 11, 1921; P18474FS.)

Pl. 302.



THE MADROÑO, A RARE FRUIT OF COLOMBIA AND ECUADOR.

(*Rheedia madrono* (H. B. K.) Pl. and Tr., S. P. I. No. 52301.)

The madroño is produced by a tall, stately, very handsome tree which grows in the lowlands of Colombia and Ecuador. The fruits, here shown natural size, are lemon yellow, with snow-white flesh of delicate texture and spicy subacid flavor. The tree is probably too tender for cultivation in any part of the United States except southern Florida, but it should be grown throughout the Tropics. (Photographed by Wilson Popenoe, Cali, Colombia, December 4, 1920; P18285FS.)

Solanum tuberosum (Solanaceae), 45023. **Potato.** From Honolulu, Hawaii. Variety 'Portuguese Red.' "This one plant produced 31 potatoes large enough for table use, and is a success. The Irish Cobbler potatoes rotted, but this new variety did not." (C. R. Baldwin, Palacios, Tex., December 28, 1921.)

Ulmus pumila (Ulmaceae), 40898. **Elm.** From Peking, China. "These trees are making a very good growth, and appear to stand drought much better than the white ash in this region. They will make very fine shade trees." (Gilbert A. Engen, Finley, N. Dak., December 19, 1921.)

Notes on behavior of the following introductions of the Office of Foreign Seed and Plant Introduction appeared recently in Department Circular No. 209, "The Work of the San Antonio Experiment Farm in 1919 and 1920," which should be consulted for further data:

The following sorghums (*Holcus sorghum*):

No. 22329. "Improved feterita."
No. 32707. "Sweet kafir."
No. 34911. "Dwarf hegari."
No. 38463. "Brown kaoling."

The following field peas (*Pisum* spp.):

No. 12887. "Carleton."
No. 21709. "Amraoti." (This variety gave the maximum grain yield, 34 pounds per acre.)

No. 22036. "Agnes."
No. 22038. "Arthur."
No. 22048. "Victoria."
No. 22079. "Peluschka."
No. 22637. "Multipliers."
No. 23848. "Andes."
No. 23850. "Lima."
No. 23851. "Vida."
No. 24262. -----
No. 24314. "Fraile." (This variety gave the maximum yield of field-cured hay, averaging 2.58 tons per acre.)
No. 24895. "Smiley."
No. 25680. "Brown."
No. 34941. "Golden vine."

The following notes on the jujube (*Ziziphus jujuba*):

"One of the most promising of the foreign introductions is the jujube. Several trees of this fruit have been on trial since 1907, and all have proved hardy and very resistant to the diseases so disastrous to other fruit trees. Although it is not produced at present on a commercial scale in the United States, it is believed to have considerable possibilities, for when properly processed the fruit is very palatable and quite unlike any confection now offered in the markets. Good yields of fruit have been produced each season, regardless of climatic conditions."

Following are the numbers of the jujubes which have been sent to the San Antonio Experiment Farm since 1907:

No. 17752 - from Changli, China.
No. 19394 - from Peking, China.
No. 19397 - from Peesan, China.
No. 22684 - from Tsintse, Shansi, China.
No. 30488 - from Chingchowfu, China.
No. 36853 - from Peking, China.
No. 37475 - from Lingpao, China.
No. 38243 - from Paihsiangchen, China.

Notes on the Pejibaye.

The paper on the pejibaye (*Guilielma utilis* Oerst.) by Popenoe and Jiménez, which was published in the Journal of Heredity for April, 1921, and which was later republished, in part, by the Literary Digest, brought requests for seeds of this valuable food-plant from all parts of the Tropics. To meet this demand, Mr. Jiménez sent from Costa Rica about 15,000 seeds, which reached Washington during December, 1921, and January, 1922. Many of these were distributed at once; the remainder, several thousand in number, have been planted at the Bell Plant Introduction Garden, Glenn Dale, Md., in order to have young palms available for distribution during the next two or three seasons.

Attention has been called to the pupunha palm of Brazil (S.P.I. No. 47868), which is listed as *Guilielma speciosa*. From descriptions which have reached us, we believe this palm to be the same as the pejibaye, or very similar to it. Mrs. Hamilton Rice, who has traveled extensively on the Amazon, praised it as one of

the finest of all tropical fruits and told of varieties as large as a peach. An effort has been made to obtain some of these varieties, but as yet we have been unable to locate any of them. Our correspondent, Dr. J. Simão da Costa, replying to an inquiry regarding the pupunha, March 6, 1922, says:

"This palm grows in clusters and is among the most elegant and useful trees of the Amazonian flora. In the gardens of the Museum (at Para) there are a few distinct varieties, and the most valuable of all the pupunha trees I remember seeing were located in the village of Mosqueiro, near the capital.

"Some native Brazilians are passionately fond of pupunha fruit, but not one of them would think of placing it among the most delicious of tropical fruits. The pupunha takes its place at the table of the middle classes and poorer people, and children of all classes and ages eat the fruit eagerly while it is in season. But if this fruit were to be had throughout the year, the average Brazilian would not prefer it to any other vegetable."

From this we deduce that the pupunha is not better than the pejibaye,- if, indeed, it is as good - for Costa Ricans of all classes, from poor and humble to the most opulent and aristocratic are exceedingly fond of the pejibaye and consider it one of the best foods produced in the country. It is not fair, perhaps, to compare the pejibaye with other tropical fruits, since it is not a dessert fruit like the mango and pineapple, but a stable foodstuff, more properly likened to potatos or beans. It may be compared very appropriately to the avocado, in so far as food value is concerned.

Grapes for Tropical Regions.

The development of grape varieties suitable for cultivation in tropical regions has received considerable attention in recent years, and this office has introduced several tropical species for the use of breeders. In the course of our exchanges with tropical botanical gardens and other institutions, we have supplied several of them with standard varieties of North American grapes.

In this connection the following paragraph, taken from a letter from Willis T. Pope, horticulturist at the Hawaiian Experiment Station (dated March 18, 1922) is of interest:

"Another introduction we are anxious to make is that of several varieties of grapes,as we have undertaken to establish the growing of some varieties other than the 'Isabella.' This variety is all right and by certain methods of pruning now supplies grapes on the Honolulu markets every day of the year,but we believe there are a number of other good varieties which may also be grown here. We wish to try the 'Grecian Corinthian' grape, but after nine months of effort, have failed to secure it from California nurseries. We are also anxious to try the 'Muscadine' grape which is quite common in some of the southern States. In addition to our vineyard of 'Isabella' grapes we have also added the plants of a tropical variety, No.44060, *Vitis tiliaefolia*, two of which are making splendid growth. Also in the collection we have several plants of 'Almeria,' some of 'Thompson's Seedless,' and ten plants of 'Cornichon.'"

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